

Ohio River drainage. Between the Scioto and the Hocking Rivers is a fairly large stream known as Raccoon Creek. It is now polluted with mine waste and at the time of my visit to it three or four years ago I found no living mollusks in the creek, and only one or two dead Unios.

East of the Muskingum system is the Mahoning River and Beaver Creek, crossing the Ohio border into Pennsylvania. I know nothing of the *Goniobases* of these streams, but suspect that if any occur in them it is *G. pennsylvanica* Pilsbry, the *Goniobasis* of the upper Ohio rivers.

The chart of this distribution shows that *livescens* crosses the northern section of Ohio in the drainage of the Great Lakes and down two streams of the Ohio River drainage. *Semicarinata* occupies the three largest streams of the Ohio River drainage from the Scioto at about the center to the Great Miami, discharging at the southwest corner of the state.

If we grant that the same laws which have governed the re-peopling of Lake Erie with Naiades have controlled in the case of *livescens*, this species entered the Maumee River through the Wabash, spread eastward to the Niagara and beyond. It managed—by means which the geologists might explain—to cross the divide between the Cuyahoga and Tuscarawas River, possibly thence into the Hocking.

Other species of *Goniobasis* than those mentioned have been recognized as occurring in Ohio, and other local races may yet be described, but I feel certain they can all only prove to be descendants of the two parent stocks, *livescens* and *semicarinata*.

SOME LARGE SPECIMENS OF ARGONAUTA.

BY CHARLES W. JOHNSON.

The largest species, or the largest example of a species, is always a subject of special interest, both to the biologist and the collector. Individual variation is not fully understood and cannot always be attributed to favorable or unfavorable environment, or the abundance or lack of nutrition. Individual variation has often led to arguments among conchologists as to

whether certain species dissolve their shells and construct new ones as their bodies increase in size.

A large example of an Argonauta in the collection of the Boston Society of Natural History has been frequently referred to in literature. At a meeting of the Society, held March 15th, 1854 (Proc. Boston Soc. Nat. Hist., vol. 5, p. 35), it was recorded that "Dr. A. A. Gould made some remarks upon the collection of shells presented to the Society by the family of the late Col. Perkins. * * * To one shell in particular he called attention, the large Argonauta, commonly called Paper Nautilus, and which is the largest specimen known to exist. Its measurements are $11\frac{3}{4}$ by $7\frac{1}{2}$ inches; the next largest specimen in the Museum of the College of Surgeons, London, measures $\frac{3}{4}$ of an inch less than this. This large specimen was brought from the Indian Ocean."

In the same vol., p. 370, this shell was again referred to under the title "On the Animal of the Argonauta Shell," by John C. Warren. He says: "The beautiful specimen of the *A. compressa* Blain. presented to the Society by Col. Thomas H. Perkins was also exhibited; this shell, which cost him \$500, is, according to Dr. Cabot who has made the comparison, the largest Argonauta shell in any cabinet in Europe or America. D'Orbigny in his great work gives as the measurements of the largest he has examined: greatest length of the shell $9\frac{1}{2}$ inches, while our specimen is 10 inches; greatest diameter of the opening $6\frac{1}{8}$ inches, in our specimen it is $6\frac{1}{2}$ inches; greatest width of the opening, including the auricular appendages, 3 inches, while in ours it is four inches."

In the Structural and Systematic Conchology, vol. I, p. 151, Tryon says: "The Boston Society of Natural History possesses an *Argonauta argo* or Paper Nautilus shell, which is said to have been purchased for \$500 by the gentleman who presented it to that Society. It is a common species, and the only reason for the great valuation of this specimen is that its diameter is about two or three inches greater than any other individual known to naturalists."

Tryon again refers to this specimen in the Manual of Conchology, vol. 1, p. 136. This specimen was later figured and

mentioned in the Bull. No. 9 of the Boston Society of Natural History, April, 1917, where the exact size, $10\frac{3}{8}$ in greatest diameter was given, as there was a discrepancy of $1\frac{3}{4}$ inches in the two accounts in the Proceedings. The writer is indebted to the Society for the use of the figure illustrating this article.

In regard to the nomenclature, it seems hardly necessary to enter into any discussion when we consider that we are not dealing with a true shell, but a shell-like structure confined to the female, and only in part a secretion of the mantle, for a portion of it is formed by the two expanded tentacles. Internal partitions are lacking and the structure serves as a nest for the eggs. Tryon, in the Manual of Conchology, places the Indo-Pacific *A. compressa* Blainville (*A. maxima* Gualt.) in the synonymy under *A. argo* Linn., of the Mediterranean. In the absence of a thorough knowledge of the animals it seems best to keep the various forms described from distant regions separate until such time as future investigations prove them to be either the same or distinct.

In this connection I would like to call the attention of readers to a rival of the above specimen. It is a very large example of *Argonauta nodosa* Solander, in the American Museum of Natural History, New York, and measures $8\frac{5}{8}$ by 11 inches. I am indebted to Mr. Arthur Jacot for these measurements.

SOME AURICULIDAE AND PLANORBIDAE FROM PANAMA.

BY HENRY A. PILSBRY.

The Panamic fauna has a particularly rich and interesting group of Auriculidae. The following new forms were found among the species collected by Mr. James Zetek.

DETRACIA ZETEKI, n. sp. Figs. a, b, c.

The shell is oval with short, almost straightly conic spire and minute, mucronate apex; dusky buff, the spire, a band near the suture and another near the base, carob brown. Surface glossy, rather closely marked with ripples of growth. Whorls of the spire narrow and flat, the greatest convexity of the last whorl above the middle. Aperture extremely narrow, having a